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Thomas Busse

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29683 7590 02/13/2009  
HARRINGTON & SMITH, PC  
4 RESEARCH DRIVE, Suite 202  
SHELTON, CT 06484-6212

EXAMINER

LU, ZHIYU

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/518,735	<b>Applicant(s)</b> BUSSE, THOMAS	
	<b>Examiner</b> ZHIYU LU	<b>Art Unit</b> 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-16,18-20 and 22-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-16,18-20 and 22-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 12/29/2008 have been fully considered but they are not persuasive.

Regarding rejections on claims 1 and 22, applicant argued that no distinction in Barrus is made between the initiation of an input and the completion of an input. There is no suggestion in Barrus that any significance should be attached to any particular initiation or completion of inputs based on, for example, a point of building up enough voltage to induce a key press detection or a completion of a keystroke.

However, the Examiner does not agree. One of ordinary skill in the art would know that there is a inherent delay between building up a voltage or current level in pressing a key regardless how small/short it is, which would have been obviously recognized putting a finger on a key as initiating an input and pressing down the key fully as completion of the input.

Moreover, there is no limitation in claim to define the initiation of an input and the completion of an input. One of ordinary skill in the art would consider the detection of key pressing being completion of an input, wherein the input voltage or current level has to reach certain level for the logic circuit (e.g. OR gate, 350 of Fig. 4) to recognize as an input. Based on this known feature, one of ordinary skill in the art would have broadly interpreted the claim language in Barrus' disclosure.

Thus, the rejections are proper and maintained.

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Regarding rejection on claim 18, applicant argued that there is no disclosure or suggestion of such a delay in all of Barrus. And there would be no reason why a person skilled in the art would be motivated to introduce such a feature into Barrus because this would appear to make the keyboard perform slower which would be clearly be considered disadvantage to Barrus.

However, the Examiner does not agree. Mode transfer of Barrus requires key pressed interrupt signal to reach microcontroller (there is also an inherent delay for the signal to run inside the microcontroller), in order to transfer the device from sleep mode to working mode. So, there is inherently a delay in transferring regardless how small/short the time frame is. Without defining what the inherent delay in transferring is, one of ordinary skill in the art would have broadly interpreted the claim language in Barrus' disclosure.

Thus, the rejection is proper and maintained.

Regarding rejection on claim 25, applicant argued that Barrus does not disclose communications functions with another device. The keyboard communication with a computer disclosed by Barrus can not be seen to take place at the completion of a user input which also causes the keyboard to exit a low power mode. There appears to be no reason why a person skilled in the art would be motivated to introduce an additional communications function into the disclosure of Barrus because this would appear to increase power consumption which would contradict the motivation for Barrus.

However, the Examiner does not agree. As disclosed by Barrus (Fig. 7, column 14 line 9 to column 35), communication between keyboard and host computer is no additional function. Since there is no claim limitation to define a completion of a user input, one of ordinary skill in

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the art would have obviously interpreted the completion of a user input as pushing discriminated key down onto key queue (730-750 of Fig. 7). It also makes sense that the keyboard has to discriminate user input first before communicating the user input with host computer.

Thus, the rejection is proper and maintained.

Regarding rejection on claim 30, applicant argued that Barrus does not have disclosure or suggestion that waking up of the microcontroller involves any communications function. There would be no reason why a person skilled in the art would be motivated to introduce such a feature into Barrus. Introducing the feature of the transmission of messages to another device before the microcontroller can wake up would make the keyboard of the prior art significantly more complicated, which would contradict the motivation of Barrus to produce simple data entry devices.

However, the Examiner does not agree. By the claim language, the first function has nothing to do with “sending a message to another device and receiving a message from the another device”. So, by Barrus’ disclosure, the first function is interpreted as keyboard communication with host computer, and the message communication with another device is interpreted as communications between the microcontroller and keyboard matrix and ROM/RAM (column 5 line 3 to column 6 line 40). By definition, a device is a contrivance serving a particular purpose, especially a machine or component used to perform one or more relatively simple tasks. There is no limitation to define that devices have to be apart from each other in different housings. And without defining what the message communications are, sending and receiving messages can be simply interpreted as electric read/write signals between

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microcontroller and keyboard matrix and ROM/RAM. As for the transfer from a first mode to a second mode initiated by key pressed interrupt, one of ordinary skill in the art would have obviously recognized that the initiation also triggers scanning keyboard matrix (column 7 lines 21-34). This means that communications between microcontroller, keyboard matrix, and ROM/RAM is needed prior to key determination, which would have obviously interpreted as part of the transfer from sleep mode to working mode. So, due to the broad claim language, Barrus' reference still reads the claim limitation.

Thus, the rejection is proper and maintained.

### ***Claim Objections***

2. Claims 18 and 25 are objected to because of the following informalities:

In claim 18, remove “and” after “user input” on line 5; and replace “a” at the end of line 7 with --the--.

In claim 25, add --the-- between “with” and “another device” on line 7.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-6, 8, 16, 18-20, 22, 23-26 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrus et al. (US Patent#5410305).

Regarding claim 1, Barrus et al. teach a device (keyboard, 10 of Figs. 1-2 and Fig. 4) comprising a touch-entry user input device (290 of Fig. 4) configured to enable user input wherein the device has a first mode (sleep mode) in which the device does not perform a first function (obvious as either commencing a scanning sequence, column 6 lines 41-51; or reading keystroke from queue, column 12 line 56 to column 13 line 26) and a second mode (active/working mode) in which the device does perform the first function and the device is configured, when in the first mode, to initiate exit (microcontroller of keyboard wakes up) from the first mode and entry into the second mode at the initiation of a user input and to perform the first function at the completion of the user input (key pressed interrupt at 350 of Fig. 4, wherein a voltage or current has to be built up to reach certain level in order to induce a key press detection) wherein the exit from the first mode occurs before discrimination of the user input (column 6 lines 41-51, column 10 lines 31-57, column 12 line 56 to column 13 line 26, where the microcontroller has to be waken up by a key press detection first in order to scan keyboard matrix to determine which key was pressed).

Regarding claim 18, Barrus et al. teach a method comprising:

detecting the initiation of a user input (key pressed interrupt at 350 of Fig. 4) and in response to the detection of the user input, immediately initiating a transfer of a device from a first mode (sleep mode) in which the device is not capable of performing a first function (obvious as reading keystroke from queue, column 12 line 56 to column 13 line 26) to a second

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mode (active/working mode) in which the device is capable of performing a first function where there is an inherent delay in transferring;

discriminating the user input after the transfer from the first mode to the second mode has been initiated (column 6 lines 41-51, where the microcontroller has to be waken up first in order to scan keyboard matrix to determine which key was pressed); and

detecting the completion of the user input (pressed-key determined) and performing the first function (reading keystroke from queue).

Regarding claim 22, Barrus et al. teach a touch-entry user input device comprising a first mode (sleep mode) in which the device does not perform a first function (obvious as reading keystroke from queue, column 12 line 56 to column 13 line 26) and a second mode (active/working mode) in which the device does perform the first function wherein the device has means for user input and is configured, when in the first mode, to initiate exit (wake up) from the first mode and entry into the second mode at the initiation of a user input (key pressed interrupt at 350 of Fig. 4) and to perform the first function (reading keystroke from queue) at the completion of the user input (pressed-key determined) wherein the exit from the first mode occurs before discrimination of the user input (column 6 lines 41-51, where the microcontroller has to be waken up first in order to scan keyboard matrix to determine which key was pressed).

Regarding claim 25, Barrus et al. teach a device (10 of Fig. 2) comprising:

a touch entry user input device configured to enable user input (290 of Fig. 4), wherein the device has a first mode (sleep mode) in which the device does not perform a first



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communications function (communication via 40 of Fig. 2; 770-840 of Fig. 7, column 14 line 59 to column 14 line 13) with another device (100 of Fig. 2) and a second mode (active/working mode) in which the device does perform the first communications function with another device and the device is configured, when in the first mode, to initiate exit from the first mode and entry into the second mode (wake up) at the initiation of a user input (key pressed interrupt at 350 of Fig. 4) and to perform the first communications function at the completion of the user input (obvious as pushing discriminated key down onto key queue, 730-750 of Fig. 7, column 14 lines 9-58) wherein the exit from the first mode occurs before discrimination of the user input (column 6 lines 41-51, where the microcontroller has to be waken up first in order to scan keyboard matrix to determine which key was pressed).

Regarding claim 30, Barrus et al. teach a method, comprising:

detecting an initiation of a user input (key pressed interrupt at 350 of Fig. 4);

in response to the detection of the user input, initiating a transfer (wake up) from a first mode (sleep mode) in which a device (microcontroller) is not capable of performing a first function (communication via 40 of Fig. 2; 770-840 of Fig. 7) to a second mode (active/working mode) in which the device is capable of performing the first function, where the initiating the transfer includes sending a message to another device (keyboard matrix and ROM/RAM) and receiving a message from the another device (obvious as read/write enabling communications between microcontroller and keyboard matrix and ROM/RAM, column 5 line 3 to column 6 line 40);

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discriminating the user input after the transfer from the first mode to the second mode has been initiated (column 6 lines 41-51, where the microcontroller has to be waken up first in order to scan keyboard matrix to determine which key was pressed); and

detecting a completion of the user input (push discriminated key down onto key queue, 730-750 of Fig. 7, column 14 lines 9-58) and perform the first function in response to the detection of the completion of the user input (770-840 of Fig. 7).

Regarding claim 2, Barrus et al. teach the limitation of claim 1.

Barrus et al. teach comprising a processor (microcontroller) configured to detect the initiation of a user input and a processor (microcontroller) configured to initiate the exit from the first mode (column 10 lines 36-39).

Regarding claim 3, Barrus et al. teach the limitation of claim 1.

Barrus et al. teach the first mode is an energy conservation mode (sleep mode).

Regarding claims 5 and 19, Barrus et al. teach the limitations of claims 1 and 18.

Barrus et al. teach wherein user input is performed by depressing a user depressible key (keyboard input).

Regarding claims 6 and 20, Barrus et al. teach the limitations of claims 5 and 19.

Barrus et al. teach further comprising the step of discriminating an instantaneous depression of the key from a continuous depression of the key (column 12 line 56 to column 13 line 19).

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Regarding claims 23-24, Barrus et al. teach the limitations of claims 5 and 19.

Barrus et al. teach comprising a processor for discriminating an instantaneous depression of the key from a repetitive depression of the key (column 12 line 56 to column 13 line 19).

Regarding claim 8, Barrus et al. teach the limitation of claim 1.

Barrus et al. teach the entry into the second mode occurs before discrimination of the user input (column 10 lines 39-41).

Regarding claim 16, Barrus et al. teach the limitation of claim 1.

Barrus et al. teach wherein the time taken to exit from the first mode and enter into the second mode is less than the time taken to discriminate a user input (column 10 lines and column 12 line 56 to column 13 line 19, wherein the discriminating process obviously takes a certain time period and comparison).

Regarding claims 26 and 31-32, Barrus et al. teach the limitations of claims 25 and 30.

Barrus et al. teach wherein the first communications function comprises transmitting data (Fig. 2, where the keyboard communicates to a computer, column 10 lines 42-57).

4. Claims 4, 9-10, 27 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrus et al. (US Patent#5410305) in view of Wright (US Patent#6912605).

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Regarding claim 4, Barrus et al. teach the limitation of claim 1.

But, Barrus et al. do not expressly disclose the second mode is a low power radio communication mode.

Wright teaches a wireless keyboard having a second mode in a low power radio communication mode (column 5 lines 43-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the wireless mode taught by Wright into the device of Barrus et al., in order to provide convenient wireless connection.

Regarding claim 9, Barrus et al. teach the limitation of claim 1.

But, Barrus et al. do not expressly disclose further comprising low power radio transceiver means and wherein the exit from the first mode is initiated by sending a message using the low power radio transceiver means.

Wright teaches a wireless keyboard comprising low power radio transceiver means (inherent in wireless keyboard) and wherein the exit from the first mode is initiated by sending a message using the low power radio transceiver means (column 5 lines 40-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the wireless mode taught by Wright into the device of Barrus et al., in order to provide convenient wireless connection.

Regarding claims 10, 27 and 33, Barrus et al. teach the limitations of claims 1, 26 and 32.

Barrus et al. teach transmitting data (Fig. 2, column 10 lines 42-57).

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But, Barrus et al. do not expressly disclose further comprising low power radio transceiver means wherein the first function comprises transmitting data using the low power radio transceiver means.

Wright teaches a wireless keyboard comprising low power radio transceiver means wherein the first function comprises transmitting data using the low power radio transceiver means (column 5 lines 40-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the wireless mode taught by Wright into the device of Barrus et al., in order to provide convenient wireless connection.

5. Claims 11-15 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrus et al. (US Patent#5410305) in view of Kammer et al. (US Patent#6950645).

Regarding claims 11 and 28, Barrus et al. teach the limitations of claims 1 and 26.

But, Barrus et al. do not expressly disclose operating as a Slave in a Bluetooth piconet.

Kammer et al. teach a wireless keyboard operating as a slave in Bluetooth piconet (column 6 line 62 to column 7 line 24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a wireless keyboard operating as a slave in Bluetooth piconet taught by Kammer et al. into the touch-entry user input device of Barrus et al., in order to provide personal wireless connection.

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Regarding claim 12, Barrus et al. teach the limitation of claim 1.

But, Barrus et al. do not expressly disclose operating in accordance with the Bluetooth Standard wherein the first mode is the Sniff Mode or Park Mode.

Kammer et al. teach operating in accordance with the Bluetooth Standard wherein the first mode is the Sniff Mode or Park Mode (column 8 lines 4-27).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a wireless keyboard operating in Bluetooth Standard wherein the first mode is the Sniff Mode or Park Mode taught by Kammer et al. into the touch-entry user input device of Barrus et al., in order to have power saving mode with wireless connection.

Regarding claim 29, Barrus et al. and Kammer et al. teach the limitation of claim 28.

Kammer et al. teach operating in accordance with the Bluetooth Standard wherein the first mode is the Sniff Mode or Park Mode (column 8 lines 4-27).

Regarding claim 13, Barrus et al. and Kammer et al. teach the limitation of claim 12.

Kammer et al. further teach the exit from the Sniff Mode is initiated by transmitting a LMP\_unsniff\_req message (inherent in column 8 lines 4-19).

Regarding claim 14, Barrus et al. and Kammer et al. teach the limitation of claim 12.

Kammer et al. further teach the exit from the Park Mode is initiated by transmitting a LMP\_accepted message (inherent in column 8 lines 4-19).

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Regarding claim 15, Barrus et al. teach the limitation of claim 1.

But, Barrus et al. do not expressly disclose operating in accordance with the Bluetooth Standard wherein the second mode is the Active Mode.

Kammer et al. teach having wireless devices operating in accordance with the Bluetooth Standard wherein the second mode is the Active Mode (discoverable mode, column 7 lines 9-19, column 12 line 59 to column 13 line 35).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Bluetooth wireless usage taught by Kammer et al. into the device of Barrus et al., in order to provide personal wireless connection.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZHIYU LU whose telephone number is (571)272-2837. The examiner can normally be reached on Weekdays: 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Zhiyu Lu/  
Examiner, Art Unit 2618  
/Z. L./  
Examiner, Art Unit 2618  
February 9, 2009

/Duc Nguyen/  
Supervisory Patent Examiner, Art Unit 2618